

ENERGY CONSERVATION AND ENVIRONMENT PROTECTION TECHNOLOGY

JIANGSU ZHONGXIAN GROUP

MISHRA ISPAT.P.LTD

Introduction

- ❑ Intellectuals & Scientists – Global concern for environment
 - ❑ Pollution created – Much more expensive to arrest than pollution control adopted
 - ❑ Energy Saved – Energy generated
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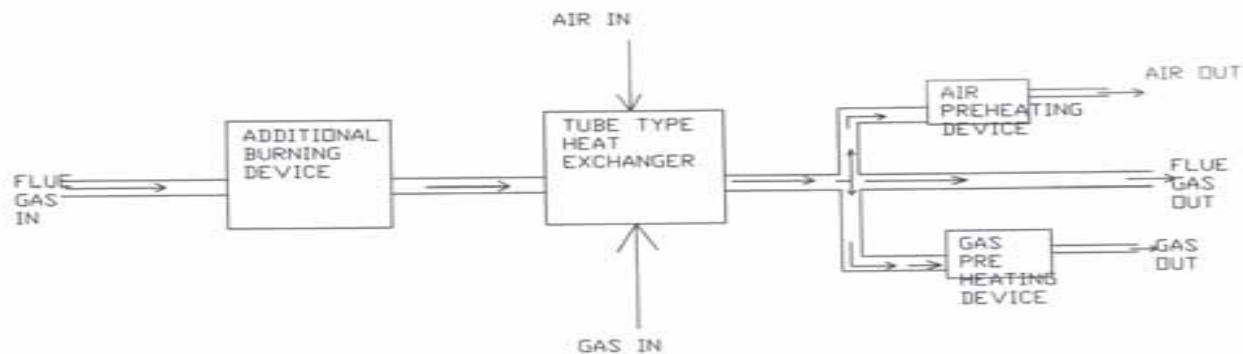
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- Energy Leadership – the Nation will be the true global Leader
 - Industrial Leadership - Environmental-friendly culture
 - Green Nation – Future leader of the world
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Technologies:

We have followings:

1. Air & gas double pre-heating furnance system
2. Dezincification device and waste residue treatment system for rotary furnance
3. Gas recovery technology and gas purification
4. Gas desulphurization & decyanadetion device
5. Coal Moisture Control

Air & Gas Pre-heating furnace for Blast Furnace



FLOW CHART FOR AIR & GAS PREHEATING PROCESS

Air and Gas Pre-heating Devices of Air heating for Blast Furnace

- ❑ The technology of Double Pre-heating Device with additional Burning Furnace has been developed
 - ❑ The system is made of Additional Burning Furnace, Tube type Air Pre-heating device, Gas Pre-heating device, Combustion Fan, Flue Gas induced Draft Fan etc.
 - ❑ Double pre-heating systems with additional Burning device can guarantee increase in the Hot Blast Temperature, greatly reducing the Coke Ratio and increasing Coal Injection and output
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- ❑ It increases the Blast Temperature to 1200-1250°C in Air-heating Furnace
 - ❑ Pre-heating temperature of air and gas can be changed at any time to meet production requirements—Flexibility , Easy and Reliable
 - ❑ Long service life of equipments of over 10 years are guaranteed
 - ❑ Less investment & speedy ROI of about 6 months
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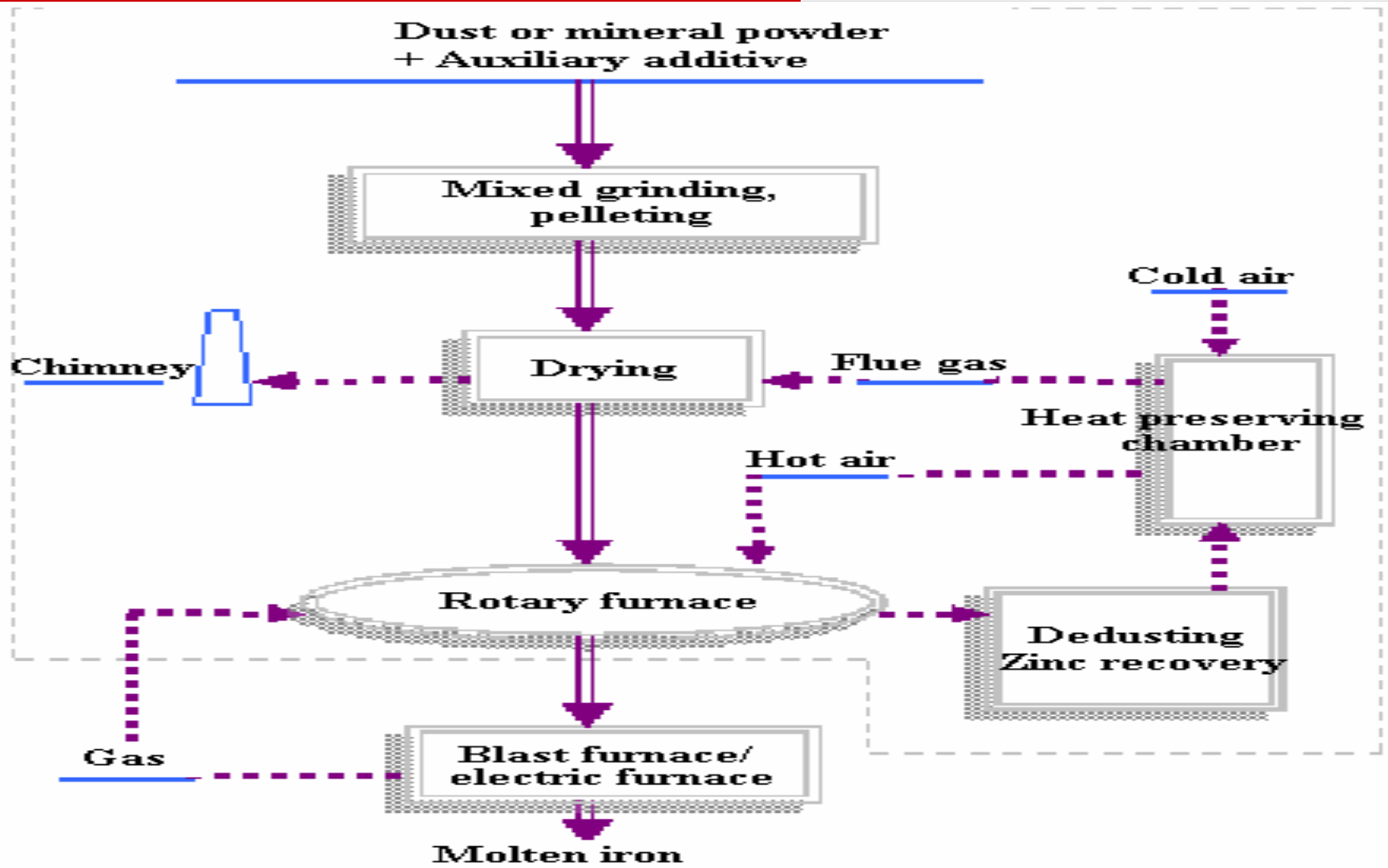
Air and Gas Pre-heating Devices of Air heating Blast Furnaces

Few Success Stories are:

- ❑ Angang Group BF no. 11 (2580m³)
 - ❑ Bayuguan BF no. 1 & 2 (4038m³)
 - ❑ Meishan Iron & Steel BF no.2 & 6
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In co-operation with Angang Design & Research Institute , we have successfully promoted 19 Double Pre-heating Devices with Additional Burning Furnace – Great contribution to Energy Saving and Emission Reduction from Blast Furnace in China has been achieved.

Dezincification System for Rotary Furnace



Dezincification

Applications:

- ❑ It can be used to treat the dust in Iron & Steel plants , Conglomeration plants and Rolling mills

 - ❑ Valuable Metals such as Zn & Pb can be collected by this process
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- It can be used to directly produce Iron via Reduction , produce high-quality metallized pellets from Iron ore or high-grade ore powder for Blast Furnace and Electric Furnace or used as the cooling agent for Rotary Furnace
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Dezincification

Advantages:

- ❑ Optimized Iron making operation
 - ❑ Zinc Recovery $>90\%$,
Zn in the Dust also can be recovered
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□ No Secondary Pollution

Rotary Furnace is a sealed system with clean Flue gas and micro negative pressure operation and there is seldom discharge in the whole process

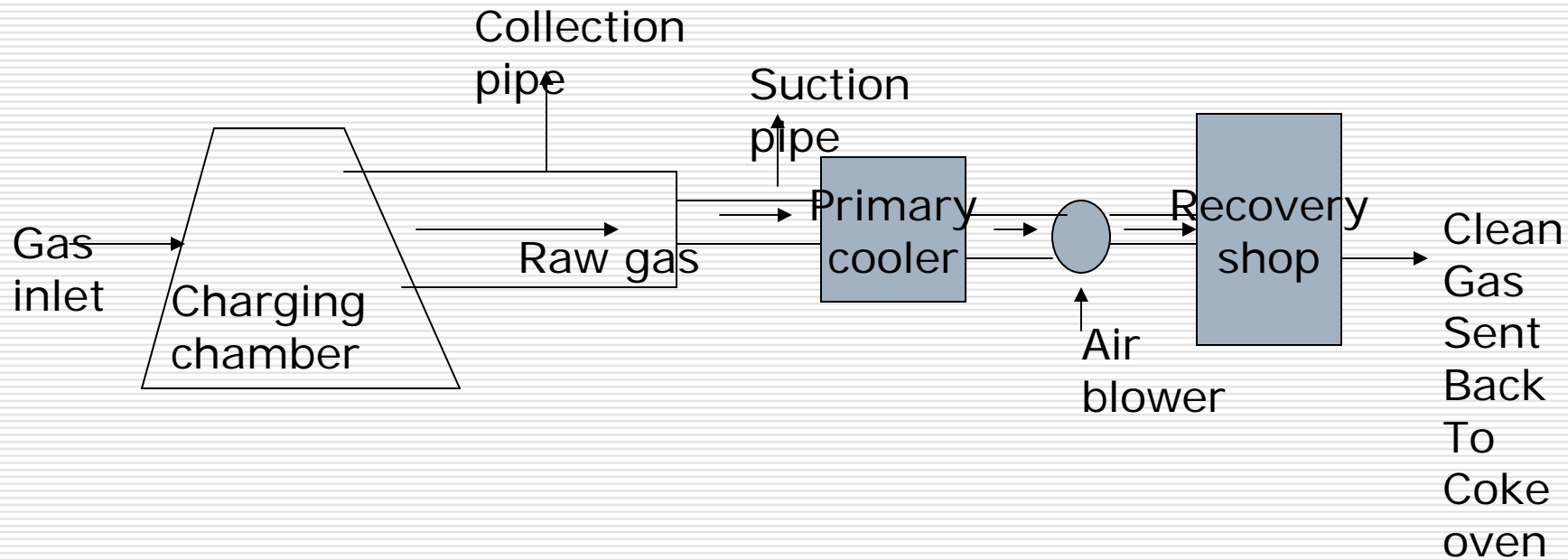
- Interconnected To The Existing Flow

The technique of Rotary Furnace is highly independent and rarely conflict against the existing flow

- Multifunction

Recovery of Valuable Metals from Dust , Direct Production of Iron as stated above

GAS recovery technology and gas purification



Gas Recovery Technology & Gas Purification

- ❑ With rapid developments in Iron & Steel industry, the technology of coking, gas purification & recovery have changed quickly
 - ❑ Raw gas is brought up into the gas collection pipe from charging chamber, circulating Ammonia water is used for spraying to cool down the gas and separate out the Tar and Ammonia water
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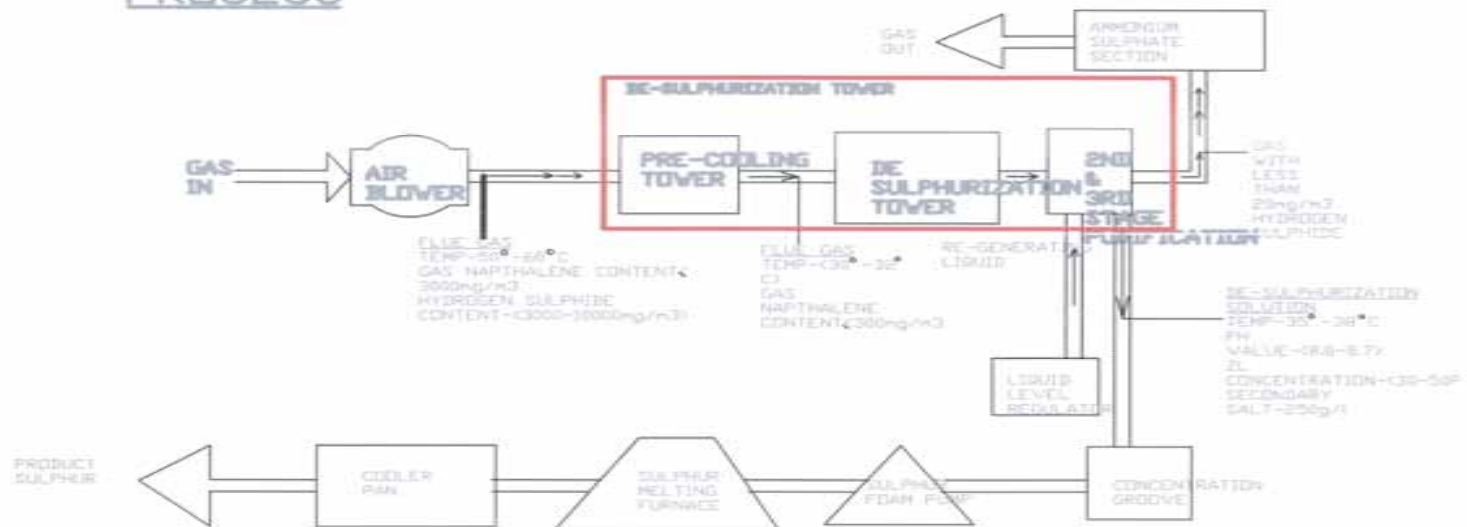
the gas is then brought via the suction pipe to the primary cooler and then the air blower in the recovery shop

- After the gas is cooled down and treated by various absorbents, chemical products including Tar, Ammonia, Crude Benzol and so on
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are extracted and the purified gas from the coke oven is sent back to the coke oven for heating or used as Fuel for other Metallurgical Furnances or furthermore used as raw gas for Ammonia synthesis or the Civil Urban gas.

Desulphurization Technology for Coke Oven

FLOW DIAGRAM OF DE-SULPHURIZATION PROCESS



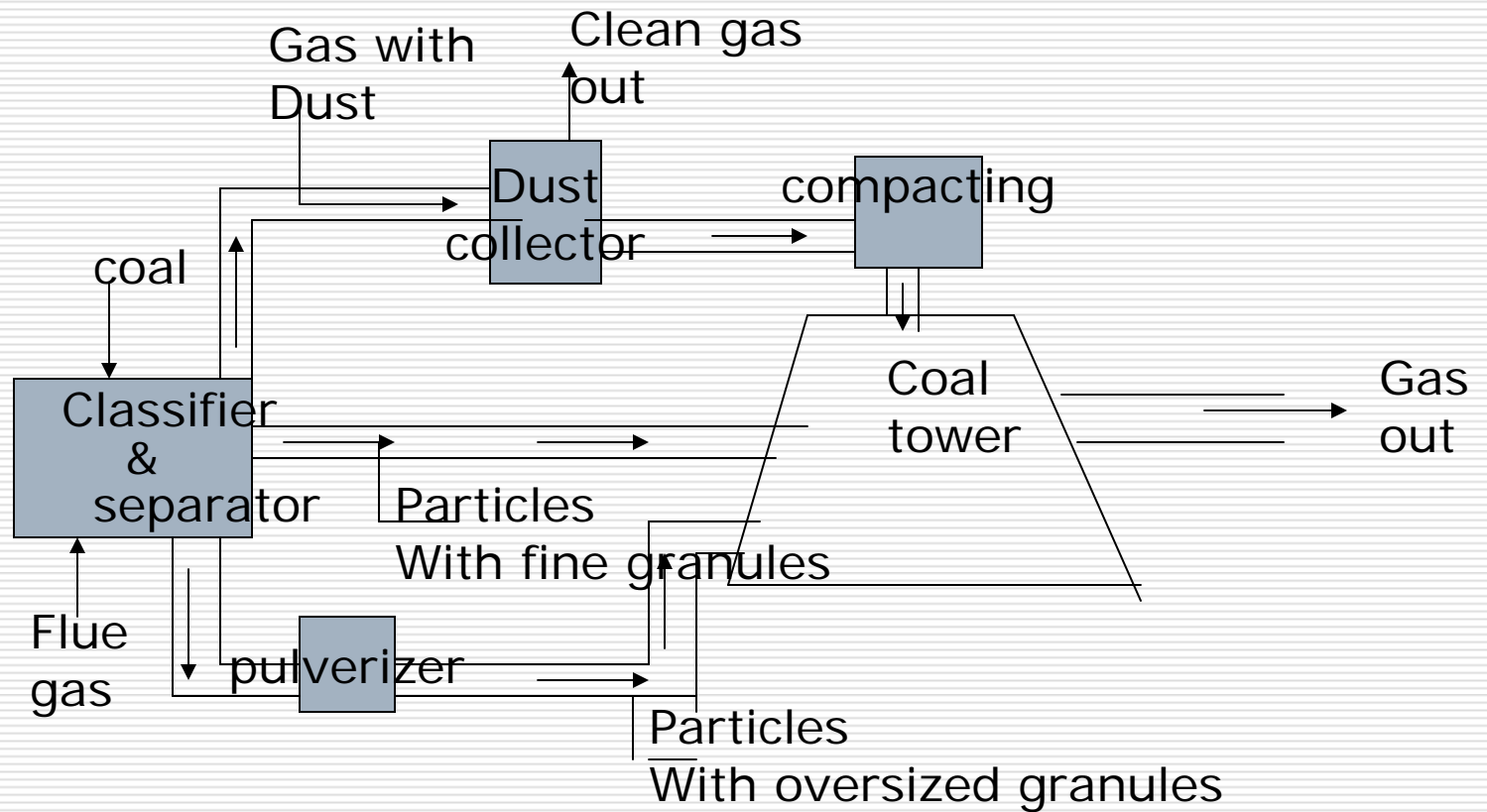
Desulphurization & Decyanation

- Generally Coke Oven gas contains 3-10 gm/m³ Hydrogen Sulphide and 0.5-1.5 gm/m³ Hydrogen Cyanide-they generate Oxysulphide and Nitrogen Oxide respectively-pollute the environment.
 - While used as Metallurgical Fuel Hydrogen Sulphide seriously affect the Steel quality-thus , Desulphurization & Decyanation are so essential.
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- In recent years new Single-Tower type Coke Oven gas and gas Desulphurization process designed jointly with Angang Group Design & Research Institute has shown excellent performance in Desulphurization and has shown excellent performance in Desulphurization and Decyanation. This method is Wet Desulphurization.
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It substitutes the Sodium Carbonate with Ammonia in the gas as Alkali source to get rid of Hydrogen Sulphide and Hydrogen Cyanide. After 3 Desulphurizations , the Hydrogen Sulphide content in the gas can reach the city gas requirements levels of 20 mg/m³

Coal Moisture Control System



Coal Moisture Control Technology

- The Pretreatment Technology of granular classification and moisture control to coking coal in coal preparation system is one of the advanced technology in coking industry.
 - Zhongxian group has expertise to set up appropriate process flow and equipments of moisture control and
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classification and separation techniques according to clients requirements to optimize economic, environmental and social benefits.

- This technology can reduce moisture in coal by about 5-7% and increase the rate of production by around 10-12%
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Major process equipments are :

- Coal material transportation system
 - Feeding and Discharging system
 - Moisture Control classification
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- Exhaust gas induced Fan
 - Dust Removing System
 - Coal Dust Compacting Equipment
 - System of monitoring, Testing & Controlling.
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Conclusion

- Initiatives like this conference goes a long way to create awareness amongst all concerned agencies on necessity and importance of clean environment, pollution free industries and creation of National Wealth through Energy Conservation.
 - Indian Metallurgical Industries will like to set global Benchmark in Environment & Pollution control through urgent initiatives
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- ❑ Indian Industries will like to be leader in Energy Conservation and add huge value to the National Wealth and Competitiveness.
 - ❑ We warmly welcome partnership approach to contribute along with you

THANK YOU
